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=> Index chemistry bioscience dissabs
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FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
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	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

INDEX 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUALINE, AQUIRE, BABS,
BIOCOMMERCE, BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB,
CIN, COMPENDEX, CONFSCI, COPPERLIT, CORROSION, DISSABS, ENCOMPLIT,
FEDRIP, GENBANK, INSPEC, INSPHYS, INVESTEXT, ...'
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98 FILES IN THE FILE LIST IN STNINDEX

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=> s (rhodium or ruthenium or palladium) (P) ((complex? or coordinat? or bind? or bound) (s)
(myoglobin or hemoglobin or hemeoxygenase catalase or cytochrome or ferritin))

2 FILE AGRICOLA
0* FILE ALUMINIUM
1 FILE ANABSTR
0* FILE APOLLIT
0* FILE AQUALINE
32* FILE BABS
0* FILE BIOCOMMERCE
34* FILE BIOTECHNO
12 FILE CABA

10 FILES SEARCHED...

0* FILE CAOLD
213 FILE CAPLUS
0* FILE CBNB
2* FILE CEABA-VTB
3 FILE CEN
1* FILE CIN
14* FILE COMPENDEX
3 FILE CONFSCI
0* FILE COPPERLIT
0* FILE CORROSION
57 FILE DISSABS
0* FILE ENCOMPLIT
8* FILE FEDRIP

25 FILES SEARCHED...

9* FILE INSPEC
1* FILE INSPHYS
1 FILE IPA
32 FILE JICST-EPLUS
0* FILE KOSMET
0* FILE METADEX
1 FILE NIOSHTIC
1* FILE NTIS

35 FILES SEARCHED...

42* FILE PASCAL
6 FILE PROMT
0* FILE RAPRA
96 FILE SCISEARCH

43 FILES SEARCHED...

0* FILE WATER
0* FILE WELDASEARCH
0* FILE WSCA
0* FILE ADISNEWS
0* FILE ANTE
2 FILE AQUASCI
2* FILE BIOENG
86 FILE BIOSIS
6* FILE BIOTECHABS

6* FILE BIOTECHDS
 8 FILE CANCERLIT
 59 FILES SEARCHED...
 1 FILE DDFU
 64 FILES SEARCHED...
 1 FILE DRUGU
 63 FILE EMBASE
 57* FILE ESBIODBASE
 0* FILE FOMAD
 0* FILE FOREGE
 0* FILE FROSTI
 0* FILE FSTA
 1 FILE HEALSAFE
 14 FILE IFIPAT
 75 FILES SEARCHED...
 32 FILE LIFESCI
 64 FILE MEDLINE
 0* FILE NUTRACEUT
 0* FILE PHARMAML
 23 FILE TOXCENTER
 59 FILE USPATFULL
 1 FILE USPAT2
 94 FILES SEARCHED...
 19 FILE WPIDS
 19 FILE WPINDEX

41 FILES HAVE ONE OR MORE ANSWERS, 98 FILES SEARCHED IN STNINDEX

L1 QUE (RHODIUM OR RUTHENIUM OR PALLADIUM) (P) ((COMPLEX? OR COORDINAT? OR BI
 ND? OR BOUND) (S) (MYOGLOBIN OR HEMOGLOBIN OR HEMEOXYGENASE CATALASE O
 R CYTOCHROME OR FERRITIN))

=> d rank

F1	213	CAPLUS
F2	96	SCISEARCH
F3	86	BIOSIS
F4	64	MEDLINE
F5	63	EMBASE
F6	59	USPATFULL
F7	57	DISSABS
F8	57*	ESBIODBASE
F9	42*	PASCAL
F10	34*	BIOTECHNO
F11	32	JICST-EPLUS
F12	32	LIFESCI
F13	32*	BABS
F14	23	TOXCENTER
F15	19	WPIDS
F16	19	WPINDEX
F17	14	IFIPAT
F18	14*	COMPENDEX
F19	12	CABA
F20	9*	INSPEC
F21	8	CANCERLIT
F22	8*	FEDRIP
F23	6	PROMT
F24	6*	BIOTECHABS
F25	6*	BIOTECHDS
F26	3	CEN
F27	3	CONFSCI
F28	2	AGRICOLA
F29	2	AQUASCI
F30	2*	CEABA-VTB
F31	2*	BIOENG
F32	1	ANABSTR
F33	1	IPA
F34	1	NIOSHTIC
F35	1	DDFU
F36	1	DRUGU

F37 1 HEALSAFE
F38 1 USPAT2
F39 1* CIN
F40 1* INSPHYS
F41 1* NTIS

=> FIL F1-5 F7 F11-12 F14-17 F19 F21
COST IN U.S. DOLLARS

	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	8.85	9.06

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=> S 11 and phosphin?

L2 9 FILE CAPLUS
L3 0 FILE SCISEARCH
L4 0 FILE BIOSIS
L5 0 FILE MEDLINE
L6 0 FILE EMBASE
L7 2 FILE DISSABS
L8 0 FILE JICST-EPLUS
L9 0 FILE LIFESCI
L10 0 FILE TOXCENTER
L11 0 FILE WPIDS
L12 0 FILE IFIPAT
L13 0 FILE CABA
L14 0 FILE CANCERLIT

TOTAL FOR ALL FILES
L15 11 L1 AND PHOSPHIN?

=> s L1 and (hydrogenat? or reduc?)

L16 80 FILE CAPLUS
L17 41 FILE SCISEARCH
L18 31 FILE BIOSIS
L19 29 FILE MEDLINE
L20 34 FILE EMBASE
L21 32 FILE DISSABS
L22 6 FILE JICST-EPLUS
L23 9 FILE LIFESCI
L24 9 FILE TOXCENTER
L25 9 FILE WPIDS
L26 5 FILE IFIPAT
L27 2 FILE CABA
L28 1 FILE CANCERLIT

TOTAL FOR ALL FILES
L29 288 L1 AND (HYDROGENAT? OR REDUC?)

=> S L1 and hydrogenat?

L30 3 FILE CAPLUS
L31 1 FILE SCISEARCH
L32 1 FILE BIOSIS
L33 0 FILE MEDLINE
L34 0 FILE EMBASE
L35 1 FILE DISSABS
L36 0 FILE JICST-EPLUS
L37 0 FILE LIFESCI
L38 0 FILE TOXCENTER
L39 0 FILE WPIDS
L40 2 FILE IFIPAT
L41 0 FILE CABA
L42 0 FILE CANCERLIT

TOTAL FOR ALL FILES
L43 8 L1 AND HYDROGENAT?

=> dup rem L29
PROCESSING COMPLETED FOR L29
L44 161 DUP REM L29 (127 DUPLICATES REMOVED)

=> D L15 1-11 ibib abs

L15 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:185451 CAPLUS

DOCUMENT NUMBER: 142:276006

TITLE: Preparation of a metal complex-protein composite for the use as a hydrogenation catalyst of an olefin

INVENTOR(S): Watanabe, Yoshihito; Ueno, Takafumi; Abe, Satoshi

PATENT ASSIGNEE(S): Nagoya Industrial Science Research Institute, Japan

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005049405	A1	20050303	US 2004-790060	20040302
JP 2005075799	A2	20050324	JP 2003-310085	20030902
PRIORITY APPLN. INFO.:			JP 2003-310085	A 20030902

OTHER SOURCE(S): MARPAT 142:276006

AB The metal complex-protein composite of the present invention includes a protein having a cavity and a metal complex and has a specific structure that the metal complex is received in the cavity of the protein. Here the metal complex is prepared by complexation of a metal ion, which is selected

among the group consisting of rhodium, ruthenium, and palladium, with a ligand. The metal complex-protein composite of the invention functions as a hydrogenation catalyst of an olefin in water. The metal complex-protein composite is thus effectively applied to hydrogenation of water-soluble substrates and has environmental advantages over organic solvents. Preparation of rhodium complexes-apomyoglobin composites and their use as hydrogenation catalysts of olefins is disclosed.

L15 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:734455 CAPLUS
DOCUMENT NUMBER: 142:168270
TITLE: Palladium(II) and platinum(II) complexes with mixed ligands of tertiary monophosphines and 5-phenyl-1,3,4-oxadiazole-2-thione or 4,5-diphenyl-1,2,4-triazole-3-thione
AUTHOR(S): Qadir, Adnan M.; Abdullah, Ali I.; Al-jibor, Subhi A.; Al-Allaf, Talal A. K.
CORPORATE SOURCE: Department of Chemistry, College of Basic Sciences, Applied Science University, Amman, 1193, Jordan
SOURCE: Asian Journal of Chemistry (2004), 16(2), 1181-1188
CODEN: AJCHEW; ISSN: 0970-7077
PUBLISHER: Asian Journal of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Several new palladium(II) and platinum(II) complexes containing two types of ligands: tertiary monophosphines (L) and 5-phenyl-1,3,4-oxadiazole-2-thione (HA) or 4,5-diphenyl-1,2,4-triazole-3-thione (HB) were prepared. The so obtained complexes trans-[PdA2L2], trans-[PdB2L2] and cis-[PtA2L2] were characterized by elemental anal., IR, UV-visible, ³¹P NMR spectroscopy, molar conductance and magnetic susceptibility measurements.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:156420 CAPLUS
DOCUMENT NUMBER: 141:174283
TITLE: A series of vinylidene-, vinyl-, carbene- and carbyneruthenium(II) complexes with [Ru(PCy3)2] and [Ru(PiPr3)2] as molecular building blocks
AUTHOR(S): Jung, Stefan; Ilg, Kerstin; Brandt, Carsten D.; Wolf, Justin; Werner, Helmut
CORPORATE SOURCE: Institut fuer Anorganische Chemie der Universitaet Wuerzburg, Wuerzburg, 97074, Germany
SOURCE: European Journal of Inorganic Chemistry (2004), (3), 469-480
CODEN: EJICFO; ISSN: 1434-1948
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:174283

AB The hydrido(vinylidene) complexes [RuHCl(:C:CHR)(L)2] (R = H, tBu, Ph; L = PCy3, PiPr3) undergo metathesis reactions in the presence of KX (X = I, NCO, OPh, CH3CO2, CF3CO2) to give the substitution products [RuHX(:C:CHR)(L)2] in good to excellent yields. Treatment of [RuHX(:C:CHR)(L)2] with HBF4 in di-Et ether affords the cationic carbyneruthenium(II) derivs. [RuHX(.tplbond.CCH2R)(OEt2)(L)2]BF4 and [RuH(κ2-O2CCH3)(.tplbond.CCH2R)(L)2]BF4. The reactions of [RuHCl(:C:CHR)(L)2] with MX [X = BF4, PF6, BPh4, B(Arf)4] in acetonitrile lead to the formation of cationic five- and six-coordinate vinylruthenium(II) compds. of which [Ru(CH:CH2)(CH3CN)2(PCy3)2]BPh4 has been characterized by x-ray crystallog. The starting material [RuHCl(:C:CHPh)(PiPr3)2] reacts with CO to give [RuCl(CH:CHPh)(CO)2(PiPr3)2] and with N2 to produce [RuCl(CH:CHPh)(N2)(PiPr3)2] (crystal structure). Protonation of [Ru(CH:CH2)(CH3CN)2(PCy3)2]X and [Ru(CH:CHPh)(CH3CN)3(PiPr3)2]X with HBF4 and HB(Arf)4 yields the dicationic carbene ruthenium(II) complexes [Ru(:CHCH3)(CH3CN)2(PCy3)2]X2 and [Ru(:CHCH2Ph)(CH3CN)3(PiPr3)2] [B(Arf)4]2, the latter of which eliminates

styrene to give [Ru(CH₃CN)₃(PiPr₃)₂][B(Arf)₄]₂.
REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:682077 CAPLUS
DOCUMENT NUMBER: 138:347831
TITLE: Compounds of general interest.
Chloro(hydrotris(pyrazol-1-yl)borato)bis(triphenylphosphine)ruthenium(II)
{RuCl[κ³-HB(pz)₃](PPh₃)₂} (pz = pyrazol-1-yl)
AUTHOR(S): Hill, Anthony F.; Wilton-Ely, James D. E. T.;
Rauchfuss, Thomas B.; Schwartz, Daniel E.
CORPORATE SOURCE: Department of Chemistry, Imperial College of Science,
Technology and Medicine, London, SW7 2AY, UK
SOURCE: Inorganic Syntheses (2002), 33, 206-208
CODEN: INSYA3; ISSN: 0073-8077
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:347831

AB RuCl[κ³-HB(pz)₃](PPh₃)₂ **complex** was synthesized
on a large scale (10 g) and was characterized. The procedure is based on
the reaction of dichlorotris(triphenylphosphine)ruthenium(II)
with hydrotris(pyrazol-1-yl)borate K salt.
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:639825 CAPLUS
DOCUMENT NUMBER: 131:345704
TITLE: The sting of the scorpion: a metallaboratrane
AUTHOR(S): Hill, Anthony F.; Owen, Gareth R.; White, Andrew J.
P.; Williams, David J.
CORPORATE SOURCE: Department of Chemistry, Imperial College of Science,
Technology, and Medicine, London, SW72AY, UK
SOURCE: Angewandte Chemie, International Edition (1999),
38(18), 2759-2761
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The novel ruthenaboratrane **complex** [Ru{B(mt)₃}(CO)(PPh₃)] (4, mt
= 2-sulfanyl-1-methylimidazolyl) was prepared from the reaction of
[Ru(CH:CHCPh₂OH)Cl(CO)(PPh₃)₂] with Na[HB(mt)₃] and
characterized spectroscopically and by x-ray crystallog. (4·2CHCl₃:
triclinic, space group P_h1v1n.1, R₁ = 0.049). The complex has a
Ru→B bond of 2.161(5) Å, resulting in a tetrahedral geometry
for boron, and **ruthenium** is octahedral. This complex is the
first example of a poly(azolyl)borate ligand that undergoes B-H activation
(stinging of the "scorpionate") to give this metallaboratrane structure.
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:184831 CAPLUS
DOCUMENT NUMBER: 128:270700
TITLE: Polyazolyl Chelate Chemistry. 6. Bidentate
Coordination of HB(pz)₃ (pz =
Pyrazol-1-yl) to Ruthenium and Osmium:
Crystal Structure of [RuH(CO)(PPh₃)₂{κ²-
HB(pz)₃}]
AUTHOR(S): Burns, Ian D.; Hill, Anthony F.; White, Andrew J. P.;
Williams, David J.; Wilton-Ely, James D. E. T.
CORPORATE SOURCE: Department of Chemistry, Imperial College of Science
Technology and Medicine, London, SW7 2AY, UK
SOURCE: Organometallics (1998), 17(8), 1552-1557
CODEN: ORGND7; ISSN: 0276-7333
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The reactions of $[\text{RuHCl}(\text{CO})(\text{PPh}_3)_3]$, $[\text{Ru}(\text{SnPh}_3)\text{Cl}(\text{CO})(\text{PPh}_3)_2]$, or $[\text{RuH}(\text{CO})(\text{NCMe})_2(\text{PPh}_3)_2]\text{BF}_4$ with $\text{K}[\text{HB}(\text{pz})_3]$ (pz = pyrazol-1-yl) provide the crystallog. characterized complex $[\text{RuH}(\text{CO})(\text{PPh}_3)_2\{\eta^2\text{-HB}(\text{pz})_3\}]$, thermolysis of which proceeds via loss of phosphine and formation of $[\text{RuH}(\text{CO})(\text{PPh}_3)\{\eta^3\text{-HB}(\text{pz})_3\}]$. The thiocarbonyl analog $[\text{RuH}(\text{CS})(\text{PPh}_3)_2\{\eta^2\text{-HB}(\text{pz})_3\}]$ is similarly obtained by the reaction of $[\text{RuHCl}(\text{CS})(\text{PPh}_3)_3]$ and $\text{K}[\text{HB}(\text{pz})_3]$, thermolysis of which provides $[\text{RuH}(\text{CS})(\text{PPh}_3)\{\eta^3\text{-HB}(\text{pz})_3\}]$. Hydride metathesis in CHCl_3 of this species provides $[\text{RuCl}(\text{CS})(\text{PPh}_3)\{\eta^3\text{-HB}(\text{pz})_3\}]$. $[\text{RuH}(\text{CS})(\text{PPh}_3)_2\{\eta^2\text{-H}_2\text{B}(\text{bta})_2\}]$ (bta = benzotriazolyl) results from the reaction of $[\text{RuHCl}(\text{CS})(\text{PPh}_3)_3]$ with $\text{K}[\text{H}_2\text{B}(\text{bta})_2]$. The hydride-bridged dinuclear complex $[\text{RuCu}(\mu\text{-H})(\text{CO})(\text{PPh}_3)_2\{\eta^3\text{-HB}(\text{pz})_3\}]\text{PF}_6$ results in high yield from the reaction of $[\text{RuH}(\text{CO})(\text{PPh}_3)_2\{\eta^2\text{-HB}(\text{pz})_3\}]$, with $[\text{Cu}(\text{NCMe})_4]\text{BF}_4$. The $\sigma\text{-Ph}$ complex $[\text{OsPh}(\text{CO})(\text{PPh}_3)_2\{\eta^2\text{-HB}(\text{pz})_3\}]$ results from the reaction of $[\text{OsPhCl}(\text{CO})(\text{PPh}_3)_2]$ with $\text{K}[\text{HB}(\text{pz})_3]$ and is cleanly converted with heating to $[\text{OsPh}(\text{CO})(\text{PPh}_3)\{\eta^3\text{-HB}(\text{pz})_3\}]$.

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:441104 CAPLUS

DOCUMENT NUMBER: 127:144294

TITLE: Synthesis and reactivity of $[\text{Ru}\{\text{HB}(\text{pz})_3\}\{\text{P}(\text{C}_6\text{H}_{11})_3\}\text{Cl}(\text{OCH}_2\text{R})]$ (pz = pyrazolyl, R = H or Me)

AUTHOR(S): Gemel, Christian; Kickelbick, Guido; Schmid, Roland; Kirchner, Karl

CORPORATE SOURCE: Institute of Inorganic Chemistry, Technical University of Vienna, Vienna, A-1060, Austria

SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1997), (12), 2113-2117
CODEN: JC DTBI; ISSN: 0300-9246

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB $[\text{Ru}\{\text{HB}(\text{pz})_3\}(\text{cod})\text{Cl}]$ (1) (cod = cycloocta-1,5-diene) reacted with $\text{P}(\text{C}_6\text{H}_{11})_3$ (≥ 1 equiv) in boiling DMF to give the highly air-sensitive intermediate $[\text{Ru}\{\text{HB}(\text{pz})_3\}\{\text{P}(\text{C}_6\text{H}_{11})_3\}\text{Cl}(\text{DMF})]$ which, on exposure to air in either ethanol or methanol as the solvent, was converted to the **ruthenium(III) complexes** $[\text{Ru}\{\text{HB}(\text{pz})_3\}\{\text{P}(\text{C}_6\text{H}_{11})_3\}\text{Cl}(\text{OCH}_2\text{R})]$ (R = Me 2a or H 2b) in good yields. 2b was characterized by x-ray crystallog. (triclinic, space group P.hivin.1, R = 0.038). Treatment of 2a or 2b with L = MeCN, pyridine, CO, $\text{P}(\text{OMe})_3$, or PMe_3 in CH_2Cl_2 afforded the (diamagnetic) **ruthenium(II) compds.** $[\text{Ru}\{\text{HB}(\text{pz})_3\}\{\text{P}(\text{C}_6\text{H}_{11})_3\}(\text{Cl})\text{L}]$ (3-7). Most remarkably, 2a or 2b reacted also with terminal alkynes HC.tplbond.CR (R = Ph, CO_2Et , Bu or SiMe_3) giving the neutral vinylidene **complexes** $[\text{Ru}\{\text{HB}(\text{pz})_3\}\{\text{P}(\text{C}_6\text{H}_{11})_3\}\text{Cl}(=\text{C}=\text{CHR})]$ (8-11). Preliminary results of a study of the catalytic activity of 2 are also presented. Thus, 2a and 2b catalyzed the dimerization of some terminal alkynes HC.tplbond.CR (R = Ph, CO_2Et or SiMe_3).

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:402118 CAPLUS

DOCUMENT NUMBER: 127:144256

TITLE: Hydride, dihydrogen, dinitrogen and related **complexes of ruthenium** containing the ligand hydrotris(pyrazolyl)borate. X-ray crystal structure of $[\{\text{HB}(\text{pz})_3\}\text{Ru}(\eta^2\text{-H}_2)(\text{dippe})][\text{BPh}_4]$ (dippe = 1,2-bis(diisopropylphosphino)ethane)

AUTHOR(S): Jimenez Tenorio, Manuel; Jimenez Tenorio, Miguel Angel; Puérta, M. Carmen; Valerga, Pedro

CORPORATE SOURCE: Dept. de Ciencia de Materiales e Ingenieria Metalurgica y Quimica Inorganica, Facultad de

Ciencias, Universidad de Cadiz, Aptdo. 40, 11510,
Puerto Real, Cadiz, Spain

SOURCE: Inorganica Chimica Acta (1997), 259(1-2), 77-84
CODEN: ICHAA3; ISSN: 0020-1693

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB $[\{HB(pz)_3\}RuCl(PPh_3)_2]$ reacts with one equivalent of dippe (1,2-bis(diisopropylphosphino)ethane) in toluene to yield $[\{HB(pz)_3\}RuCl(dippe)]$. This compound reacts with $NaBH_4$ in MeOH furnishing the monohydride $[\{HB(pz)_3\}RuH(dippe)]$, whereas $[\{HB(pz)_3\}RuH(PPh_3)_2]$ was obtained by reaction of $[RuHCl(PPh_3)_3]$ with $K[HB(pz)_3]$. Both monohydride complexes are protonated by $HBf_4 \cdot OEt_2$ at -80° to give the corresponding dihydrogen adducts $[\{HB(pz)_3\}Ru(H_2)(dippe)]^+$ and $[\{HB(pz)_3\}Ru(H_2)(PPh_3)_2]^+$, as inferred from longitudinal relaxation time (T_1) and $1J(H,D)$ measurements. The latter complex is unstable and decomps. at room temperature, but the former is a stable species which does not rearrange to the dihydride form when the temperature is raised. The x-ray crystal structure of $[\{HB(pz)_3\}Ru(H_2)(dippe)][BPh_4]$ was determined (monoclinic, space group $P2_1/c$, $R = 0.057$). The dihydrogen ligand in this compound is labile, and readily replaced by a range of neutral donor mols., yielding the corresponding complexes $[\{HB(pz)_3\}Ru(L)(dippe)][BPh_4]$ ($L = CO, CNBut, Me_2CO, THF, N_2$). There is also supporting evidence for the formation of a paramagnetic Ru(III) methoxide complex, $[\{HB(pz)_3\}Ru(OMe)(dippe)][BPh_4]$. All compds. were characterized by IR, NMR and microanal.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:60763 CAPLUS

DOCUMENT NUMBER: 126:69230

TITLE: Syntheses and Characterization of Hydrotris(1-pyrazolyl)borate Dihydrogen Complexes of Ruthenium and Their Roles in Catalytic Hydrogenation Reactions
AUTHOR(S): Chan, Wai-Chung; Lau, Chak-Po; Chen, Yu-Zhong; Fang, Yi-Qun; Ng, Siu-Man; Jia, Guochen

CORPORATE SOURCE: Department of Applied Biology Chemical Technology,
Hong Kong Polytechnic University, Kowloon, Hong Kong
SOURCE: Organometallics (1997), 16(1), 34-44

CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New hydrotris(1-pyrazolyl)borate complexes of ruthenium were synthesized. Reaction of $RuCl(HB(pz)_3)(PPh_3)_2$ (1) with $NaBH_4$ in ethanol produced the yellow monohydride complex $RuH(HB(pz)_3)(PPh_3)_2$ (2). Protonation of 2 with $HBf_4 \cdot Et_2O$ in dichloromethane gave the mol. dihydrogen complex $[Ru(HB(pz)_3)(PPh_3)_2(H_2)]BF_4$ (3). Reactions of 3 with L produced $[Ru(HB(pz)_3)(PPh_3)_2(L)]BF_4$ ($L = CH_3CN$ (4), H_2O (5), N_2). 3 Could be regenerated by reactions of 4 or 5 with pressurized H_2 . Deprotonation of 3 occurred with NEt_3 or H_2O under hydrogen pressure. Treatment of 1 with $LiBF_4$ in acetonitrile produced the bis-solvento complex $[Ru(HB(pz)_3)(PPh_3)(CH_3CN)_2]BF_4$ (6). Heating a THF/ CH_3CN (9/1) solution of 1 at 60° gave $RuCl(HB(pz)_3)(PPh_3)(CH_3CN)$ (7). Reaction of 7 with $NaBH_4$ in THF produced the yellow monohydride complex $RuH(HB(pz)_3)(PPh_3)(CH_3CN)$ (8). Acidification of the monohydride 8 with $HBf_4 \cdot Et_2O$ yielded $[Ru(HB(pz)_3)(PPh_3)(CH_3CN)(H_2)]BF_4$ (9). Both complexes 4 and 6 are active catalysts for the hydrogenation of olefins in either anhydrous or hydrous THF. Enhanced catalytic activities were observed in the presence of water or NEt_3 . Deuterium was incorporated into the catalytic hydrogenation products when D_2O was present in the reaction mixture. The enhanced catalytic activity in the presence of water, and incorporation of deuterium in the hydrogenation products, could be best explained with mechanisms which involve dihydrogen complexes.

REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 11 DISSABS COPYRIGHT (C) 2005 ProQuest Information and

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 ACCESSION NUMBER: 93:45769 DISSABS Order Number: AAR9317299
 TITLE: REACTIVITY OF (OXO) (PHOSPHINE) RUTHENIUM(IV) AND
 (AQUA) (PHOSPHINE) RUTHENIUM(II) COMPLEXES:
 MECHANISMS OF THE OXIDATION OF ORGANIC SUBSTRATES AND
 LIGAND SUBSTITUTION (ORGANIC SUBSTRATE OXIDATION, OXO (PHOSPHINE) RUTHENIUM(IV), (AQUA) (PHOSPHINE) RUTHENIUM(II))
 AUTHOR: ACQUAYE, JOHN HENRY [PH.D.]; TAKEUCHI, KENNETH J. [advisor]
 CORPORATE SOURCE: STATE UNIVERSITY OF NEW YORK AT BUFFALO (0656)
 SOURCE: Dissertation Abstracts International, (1993) Vol. 54, No. 4B, p. 1953. Order No.: AAR9317299. 169 pages.
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 FILE SEGMENT: DAI
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 ENTRY DATE: Entered STN: 19930920
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AB The reactivity of the oxo(phosphine)ruthenium(IV) complexes, $\text{Ru}(\text{bpy})_2(\text{O})\text{PR}(\text{C}(\text{H})_5)_3$ (where $\text{bpy} = 2,2'\text{-bipyridine}$ and $\text{PR} = \text{P}(\text{C}(\text{H})_5)_3$, $\text{P}(\text{p}-\text{C}(\text{H})_4\text{OCH}_3)_3$, $\text{P}(\text{p}-\text{C}(\text{H})_4\text{CH}_3)_3$, $\text{P}(\text{p}-\text{C}(\text{H})_4\text{F})_3$, $\text{P}(\text{C}(\text{H})_5)_3$, $\text{P}(\text{C}(\text{H})_5)_2\text{C}(\text{H})\text{CF}_3$, and $\text{P}(\text{p}-\text{C}(\text{H})_4\text{CF}_3)_3$) in the oxidation of sulfides, sulfoxides, alcohols and tertiary anilines was investigated. In addition, the aqua ligand substitution by acetonitrile in the (aqua) (phosphine)ruthenium(II) complexes was investigated in aqueous medium.

For the oxidation of sulfides to sulfoxides, an excellent correlation ($R^2 = 0.99$) was obtained between $\log(k_{\text{X}}/k_{\text{H}})$ and the σ values for the substituents of para-substituted thioanisoles ($\rho = -1.56$). For the oxidation of sulfoxides to sulfones, a good correlation ($R^2 = 0.98$) was obtained between $\log(k_{\text{X}}/k_{\text{H}})$ and the σ^+ values for the substituents of para-substituted methyl phenyl sulfoxides ($\rho = -0.42$). In addition, the kinetic isotope effect for the oxidation of thioanisole and methyl- d_3 phenyl sulfide produced $k_{\text{H}}/k_{\text{D}} = 1.14$, and the oxidation of methyl phenyl sulfoxide and methyl- d_3 phenyl sulfoxide resulted in an inverse isotope effect of $k_{\text{H}}/k_{\text{D}} = 0.64$. Hammett correlations of $\log(k_{\text{X}}/k_{\text{H}})$ versus σ (where σ is the Hammett substituent constant for each of the para-substituents on the triphenylphosphine ligands) also show linear relationships. The slopes of these plots gave $\rho = 0.49$ ($R^2 = 0.99$) for the oxidation of thioanisole and $\rho = 0.37$ ($R^2 = 0.99$) for the oxidation of methyl phenyl sulfoxide by the $\text{Ru}(\text{bpy})_2(\text{O})\text{PR}(\text{C}(\text{H})_5)_3$ complexes. The results of all our experiments suggest that the rate determining step in the oxidation of thioanisole by $\text{Ru}(\text{bpy})_2(\text{O})\text{P}(\text{C}(\text{H})_5)_3$ involves primarily single electron transfer, whereas the rate determining step of the oxidation of methyl phenyl sulfoxide involves primarily an $\text{S}_\text{N}2$ mechanism.

There were not good correlations for plots of $\log(k_{\text{X}}/k_{\text{H}})$ versus the Hammett substituent constants σ , σ^+ or σ^- for the oxidation of the para-substituted benzyl alcohols by $\text{Ru}(\text{bpy})_2(\text{O})\text{P}(\text{C}(\text{H})_5)_3$. However, the plot of $\log\{k_{\text{X}}/k_{\text{H}}\} - \sigma$ versus σ^+ (where σ^+ is the free radical stabilization constant), gave an excellent correlation with $\rho = -0.57$, ($R^2 = 0.99$) for the oxidation of the para-substituted benzyl alcohols by $\text{Ru}(\text{bpy})_2(\text{O})\text{P}(\text{C}(\text{H})_5)_3$ in methylene chloride. From these and other results, we propose a reaction pathway for the oxidation of benzyl alcohol by (oxo)ruthenium(IV) complexes which involves a partial hydrogen atom abstraction from the benzylic carbon in the rate determining step.

The features observed in the demethylation of the tertiary anilines by the $\text{Ru}(\text{bpy})_2(\text{O})\text{PR}(\text{C}(\text{H})_5)_3$ complexes resemble those of the cytochrome P-450 type oxygenation. (Abstract shortened by UMI.)

ACCESSION NUMBER: 93:32621 DISSABS Order Number: AAR9309867
TITLE: PROTON-COUPLED ELECTRON TRANSFER AND MULTIELECTRON OXIDATIONS IN COMPLEXES OF RUTHENIUM AND OSMIUM
AUTHOR: DOVLETOGLOU, ANGELOS [PH.D.]; MEYER, THOMAS J. [advisor]
CORPORATE SOURCE: THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL (0153)
SOURCE: Dissertation Abstracts International, (1992) Vol. 54, No. 2B, p. 809. Order No.: AAR9309867. 285 pages.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI
LANGUAGE: English
ENTRY DATE: Entered STN: 19930722
Last Updated on STN: 19930722

AB My doctoral research concerns the mechanism of proton-coupled electron transfer over an extended pH range. The impetus for this study derives from the importance of such processes in biological systems. These processes between **ruthenium** and osmium complexes and hydroquinones have been studied by using spectrophotometric methods and cyclic voltammetry. Elucidation of the mechanistic details has been attempted by using isotopic labelling, kinetic analyses, and numerical simulation of complex kinetic schemes.

The coordination and redox chemistry of polypyridyl-acetylacetonato and -oxalato complexes of **ruthenium** and the role of ancillary ligands in defining the properties of $\text{Ru}(\text{IV})$ complexes were explored. These studies represent the first attempt to probe possible $2e^-$ oxidation by a $\text{Ru}(\text{IV})/\text{Ru}(\text{II})/\text{OH}^-$ couple. Using a test ligand in the coordination sphere the net result of the acac ligand affecting the electron density at the metal center was examined. It was found that acac can act as a σ donor, π donor, and π acceptor.

The synthesis and X-ray crystal structure of trans- $(\text{Ru}(\text{VI})(\text{O})_2(\text{H}_2\text{O}))(\text{ClO}_4)_2$ are described. The complexes trans- $(\text{Ru}(\text{tpy})(\text{O})_2(\text{H}_2\text{O}))^{2+}$ and trans- $(\text{Ru}(\text{tpy})(\text{O})_2(\text{CH}_3\text{SCN}))^{2+}$ have been characterized by using UV-vis, ^1H NMR, FTIR, and resonance Raman spectroscopy, and electrochemical techniques. Comparisons with the redox potentials for related couples and a thermodynamic analysis based on related **ruthenium** and structurally equivalent complexes of osmium revealed a number of features that will be useful in the rational design of metal ion redox catalysts.

A complex mechanistic study of a novel cis-directed four-electron oxidation by trans- $\text{Ru}(\text{VI})\text{O}_2$ complexes involving double O-atom transfer to a single substrate was undertaken. The kinetics of nitrogen atom transfer reactions of an $\text{Os}(\text{VI})$ nitrido complex with phosphines was studied. A reactivity model was developed for metal-oxo epoxidation catalysts and **cytochrome P-450**, based on the kinetics and mechanisms of olefin epoxidation by $\text{Ru}(\text{IV})\text{O}$ and trans- $\text{Ru}(\text{VI})\text{O}_2$.

The $(\text{bpy})_2(\text{O})\text{Ru}(\text{V})(\mu\text{-O})\text{Ru}(\text{V})(\text{O})(\text{bpy}))^{4+}$ complex represents the only well-defined molecular catalyst for water oxidation. This work describes the synthesis, characterization, and redox chemistry of $((\text{tpy})(\text{C}_2\text{O}_4)_2\text{Ru}(\text{III})(\mu\text{-O})\text{Ru}(\text{sp}(\text{III})(\text{C}_2\text{O}_4)_2(\text{tpy})))$ and $((\text{tpy})(\text{CO}_3)\text{Ru}(\text{sp}(\text{III})(\mu\text{-O})\text{Ru}(\text{sp}(\text{III})(\text{CO}_3)(\text{tpy})))$. In acidic solutions the oxalato ligand is lost providing a convenient synthetic route to the cis- $((\text{tpy})(\text{H}_2\text{O})_2)_2\text{Ru}(\text{sp}(\text{III})(\mu\text{-O})\text{Ru}(\text{sp}(\text{III})(\text{H}_2\text{O})_2)_2)^{4+}$.

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		<i>DB=PGPB,USPT,USOC; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
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<input type="checkbox"/>	L5	L3 and (apomyoglobin apohemoglobin apohemeoxygenase apocatalase apocytochrome apoferritin)	1
<input type="checkbox"/>	L4	hydrogenation with cataly\$ same (ghodium ruthenium palladium Pd) same complex\$ same (apomyoglobin apohemoglobin apohemeoxygenase apocatalase apocytochrome apoferritin)	0
<input type="checkbox"/>	L3	hydrogenation with cataly\$ same (ghodium ruthenium palladium Pd) same complex\$	2606
<input type="checkbox"/>	L2	hydrogenation with cataly\$ same (ghodium ruthenium palladium Pd)	29767
<input type="checkbox"/>	L1	hydrogenation same cataly\$ same (ghodium Ru ruthenium Ru palladium Pd)	33704

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<input type="checkbox"/>	L4	L3 and complex\$	141
<input type="checkbox"/>	L3	L2 and (cavity pocket? coordinat\$)	142
<input type="checkbox"/>	L2	L1 and apo\$	187
<input type="checkbox"/>	L1	(myoglobin hemoglobin hemeoxygenase catalase cytochrome ferritin) same (rhodium Rh ruthenium Ru palladium Pd)	437

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